The Excavating Engineer

(FORMERLY STEAM SHOVEL NEWS)

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THE EXCAVATING ENGINEER PUBLISHING COMPANY

FRANK G. BOLLES, Manager and Editor BRADLEE VAN BRUNT, Assistant Manager

267 NATIONAL AVENUE MILWAUKEE, WIS., U. S. A.

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Section of Finished Canal at Station No. 2180. Note the Character of Material which was Handled by this Dragline Excavator.

Dragline Used in Digging the Raquoa Canal near Del Medio, in Province of Matanzas, Cuba.

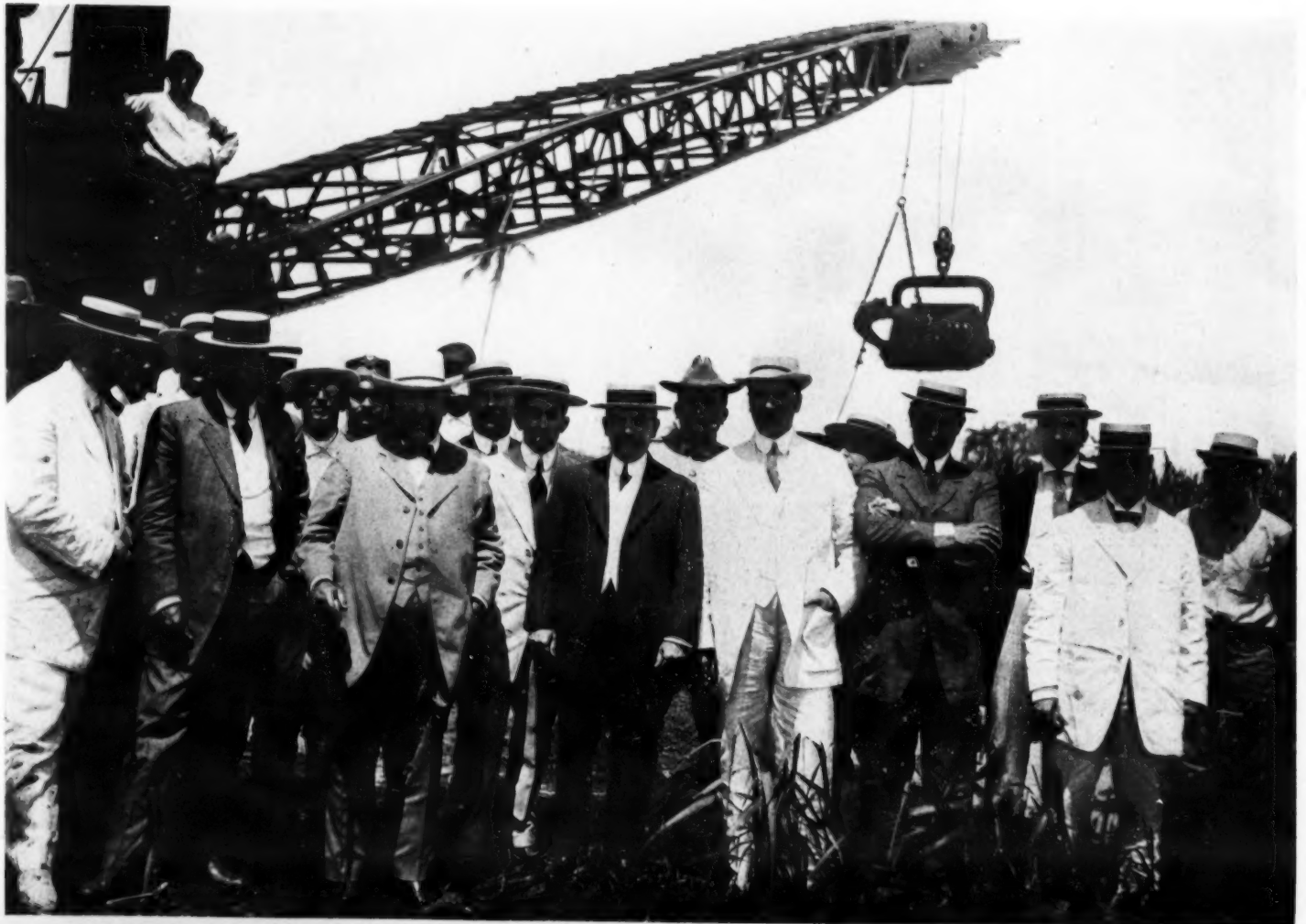
A class 14 Bucyrus Drag Line Excavator was sent to Cuba in 1911, the same having been ordered by Messrs. Champion and Pascual, Engineers and Contractors.

The machine was ordered for use in connection with the contract to dig the Roquoa Canal which is 45 miles long, 60 to 80 feet in width and varying in depth from 12 to 22 feet.

In April 1911 the machine left the shops at South Milwaukee, Wis., in a dismantled condition for Mobile, Ala., at which point it was taken by steamer to Cardenas, Cuba. Here it was again loaded onto cars and taken via the Havana Union R. R., a standard gauge line, to a place called Soladad. At this point the machine was again transferred to small narrow gauge cane cars and taken to N. Padryas's Bedago, Del Medio, Province of Matanzas. Still another shipment was necessary at this point and by even cruder means of transportation than the preceding leg of the journey. Two wheeled ox-carts, such as are used for hauling cane, were brought into play for a 4½ mile trip across cane fields to the place at which the erection was to take place. The erecting engineer arrived on the ground July 11th and the first material reached its destination July 12th.

As can well be imagined the difficulties in transporting a machine of this size to a point inland in a country such as Cuba were many and perplexing. However, all of the parts finally reached destination

The President of Cuba Removing the First Bucket of Earth from the Raquao Canal. The Machine is a Class 14 Bucyrus Dragline.



The Beginning of Operations Excited Much Interest, the President of Cuba and other Government Officials Being Present when the Dragline was Started on the Work. The President Moved the First Bucketful of Earth.

safely and erection of the machine was begun on July 14th and on the afternoon of July 29th the whistle was blown as a signal that operations might begin. The drag line had been completely assembled by the engineer in charge of the work, Mr. John McCoy, and two American assistants in the short period of 15 working days. To assist them they had a gang of 12 natives and while this gang was large in numbers it was, as might be expected in tropical climes, low in efficiency.

On August 3rd the President of Cuba with numerous other Cuban Officials arrived on the scene and the President, personally moved the first load of earth from the canal.

The material which had to be dug was a hard red clay intermixed with boulders of huge dimensions. The job was one which would have been difficult if not impossible for a steam shovel of equal weight to have handled. Many boulders of more than 3,000 pounds weight were removed without being chained.

The machine was so extremely satisfactory that it was accepted in ten days. The erecting engineer remained on the job for 30 days to break in one American and two native operators who carried on the work in a perfectly satisfactory manner.

The contractors report of operations showed that the machine made 638 swings in 9 hours and 5 minutes, a very satisfactory record and averaging one swing every 52 seconds for the entire day.

Ready to Dump the First Bucket of Earth.

The several views show the work at different points and at different stages as well as on the day that digging operations were actually begun.

Difficulties at Panama

A Flood in the Panama Canal.

A Bucyrus steam shovel inundated owing to heavy rains and overflowing stream at Bas Obispo. Floods have been one of the great hindrances to work on the canal. The steam shovel seen in the picture was not damaged.

Avalanche of Rocks in the Canal Zone.

A Marion steam shovel buried and wrecked under thousands of tons of rock which rushed down the hillside at Ancon Quarry. Landslides along the deeper sections of the Panama Canal have been frequent and have increased the cost of construction.

The Revolving Shovel for Light Railway Excavation

As time goes by the small revolving shovel is not only becoming recognized more and more as a necessary adjunct to the heavy shovel outfit on big railroad contracts, but as by far the most economical machine for light station work, spur and side track construction. On a big railroad contract which, besides the heavy work, includes small, isolated cuts, it may be used to splendid advantage; it is easy to move across country; it can handle shallow cuts to greater advantage than a scraper; it is a wonderful labor saver, and hence a trouble saver, and in addition to its economy of operation it makes possible the reduction of the necessary camping and housing, and hence, economizes in the supplies and miscellaneous camp expenses.

On thorough cut work it is useful because of its ability to load wagons or cars back of itself. It, furthermore, may be very effectively used in mountainous work where a heavy machine would be difficult to handle.

Alex McGavock's recent contract on the C. & N. W. Ry., near Mason City, Ill., affords a good example of the revolving shovel as an adjunct to heavy equipment on a big railroad contract, and Reynolds & Henderson's work on the L. & N. near Morris, Alabama, described in our July issue is a splendid illustration of the thorough cut work by this method.

The average station or yard contract is generally too light for the large shovel and hence, is perfectly adapted to the revolving shovel. Our August issue describes a Bucyrus 14B, used by W. S. Cooper on the Toronto, Hamilton & Buffalo Railroad, for constructing a freight yard at Hamilton, Ontario.

Our present article describes the use of a revolving shovel on side track work, and illustrates, in a striking manner, the advantages of the revolving shovel over team and scraper excavation.

The work in question is being carried on at the present time at Lake Shore Junction on the Chicago & North Western Railroad, about four miles north of Milwaukee. The spur and side track is intended for a freight siding and an industrial spur. The excavation is about 500 feet long and 75 feet wide at the widest point. The cut has a maximum depth of ten feet and an average of about 6 feet and the total amount of material to be moved is about

14B Bucyrus Shovel Digging Frozen Ground on C. & N.W. Ry. at Lake Shore Junction, Wis. Froemming Bros., Contractors.

10,000 cu. yds. The contract is being handled by Froemming Bros. of Milwaukee with a 14-B Bucyrus shovel.

The first cut was 36 feet in width. For the first 200 feet, the material was hauled a quarter of a mile. Here it was necessary to use eleven teams. For the rest of the work the material is being carried a maximum distance of 400 feet. On this shorter haul it has been found that six teams were sufficient to keep the shovel busy. The majority of the dump wagons used are Studebakers, which are giving excellent satisfaction.

The ground is well frozen but the shovel digs it with no difficulty. The cold weather, however, hampers the operation in the usual manner. It makes it necessary to watch the drain pipe closely to prevent freezing and it interferes with moving up, since the planking freezes into the ground and gets covered with ice from the shovel drip, causing the wheels to slew and slip while moving. This, consequently, renders it necessary to employ more men than in mild weather. The machine has no difficulty in digging 400 cubic yards a day when conditions are good. It loads a two yard wagon in about 45 seconds. At the present time however, darkness prevents working over 8½ hours a day.

The water, which is obtained at the rate of $1 a week, is hauled to the job by the contractor in a sprinkler wagon (partially shown on the left of the illustration on page 166) rented from the city at the rate of $1 a day. The coal delivered on the job costs $5 a ton. At the present time, owing principally to the cold weather, it is necessary to burn more than would ordinarily be consumed in mild weather.

The crew consists of the following:

1 engineer at $4.00 a day.
1 fireman at $3.00 a day.
1 foreman at $3.50 a day.
1 handyman at $2.50 a day.
2 men on dump at $2.00 a day.
3 pitmen at $2.00 a day.

Mr. Arthur Froemming superintends the work in person. He estimates the cost of operation averages about 10 cents a yard. The work will take in all about 30 days to complete.

Loading Wagons.

It does not require deep study to see the tremendous advantages offered by the use of the small revolving shovel over team and scraper operation. In the first place the cost of scraper operation in winter would be prohibitive due to the frozen ground. Furthermore, wet weather would completely hold up the work. On the other hand the shovel can handle the frozen material with no trouble whatsoever, and by the use of planks, can be operated satisfactorily over wet ground. The scraper outfit would, moreover, be clumsy and expensive. A plow hauled by four horses and 10 to 12 wheeled scrapers would be necessary at all times, but when the haul is long it would be necessary to construct a trap in order to load wagons. Hence the maintenance of a large outfit is necessary particularly for a long haul which would be idle on a short haul. Mr. Froemming estimates that the cost of this method on this particular job would be well over 35 cents a cubic yard.

The illustration shows clearly the character of the frozen ground and the method being used by Froemming Bros., in carrying out the work.

Record Work with a Dragline Excavator

Reports that reach us from time to time regarding the work of draglines in the hands of competent runners indicate that these machines are proving to be better adapted to certain classes of work than are steam shovels or team scrapers. Under certain conditions the railroad fill seems to be ideal work for the dragline. In substantiation of this statement we cite the record of a Class 24 Bucyrus machine on the double tracking of the C. M. & St. P. R. R. near Andover, So. Dakota. In 28 shifts of 10 hours each this machine moved 47,000 cubic yards of material or at the rate of 1,320 cu. yards per hour. The machine carried a 3½ yard bucket which would have necessitated 38 swings per minute with a full load each time. However, the rate of swinging was very much faster and the full capacity of the bucket was not always secured.

The dragline is surely a wonderful machine for this class of work and in competent hands will show greatly reduced costs over any other type of excavator.

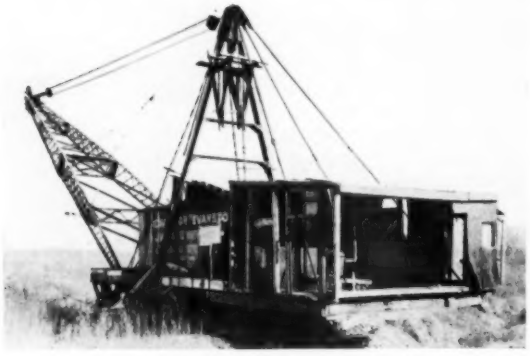
The Development of the Drag Line Excavator

By S. E. Elmore

UNLIKE the steam shovel and dredge, which were first designed as complete machines, the dragline excavator has been built to meet the demand for a machine capable of handling advantageously the drag scraper bucket.

The basic principle upon which all drag scraper buckets operate is old. This statement is confirmed by an examination of the patent office records, However, it is only within recent years that a commercially practical bucket has been developed.

At the time of the building of the Hennepin Canal a contractor on the work needed a bucket which would handle harder material than could be dug by a bucket of the "clam shell" or "orange peel" type and which was not limited to working directly under the point of suspension on the boom.



An Early Type of Dragline Excavator

To meet these requirements he designed a solid bucket open on the top and front or cutting end. This bucket was handled by two lines, one being fastened to a bail and the other to the front of the bucket. The line attached to the bail was used to hoist the bucket while the other was used for dragging the bucket while digging.

The bucket was operated on a stiff leg derrick by means of a two-drum hoisting engine and, although it was rather a crude affair, it did the work and demonstrated the efficiency of such a machine on certain classes of work.

The experience with this outfit also indicated very clearly that if a more flexible arrangement could be secured for the manipulation of the bucket its usefulness would be greatly enhanced.

This led to the designing of a machine capable of making a full circle swing, a design which is now commonly accepted as standard construction for dragline excavators.

The modern machine consists of a revolving frame which carries the boom and all of the machinery necessary for swinging the frame and hauling and hoisting the bucket. This revolving frame, which is made of structural steel, is carried on a turntable mounted on a sub-base. The latter, in turn, is mounted on a suitable form of traction by means of which the entire machine may be moved from place to place on the job.

The early experience with the "home-made" outfits demonstrated the fact that frames and sub-bases must be of the most rugged design and construction; that the ordinary contractors hoisting engine was entirely too light and the power inadequate for the work. Wooden structures would not stand the heavy strains imposed on them and hence the development of the structural steel frames with steel turntable and bases upon which to revolve them.

Rigidity and great strength are essential factors to the success of the dragline for heavy service and Bucyrus draglines are today built with the strength and lasting qualities that have made steam shovels famous in every country in the world.

Machines of this character, possessing every qualification for hard work that has been demanded of the steam shovel, enable a contractor to be as certain of a given output from a dragline as he is from a steam shovel.

Contractors have been quick to show their appreciation of these qualities and, as a result the dragline has come into very general use and is now accepted as the standard machine for certain kinds of work.

Foreigners, too, have already recognized the many adavantages possessed by the dragline excavator and numerous machines have been sent abroad on important excavating contracts.

One of the most important applications of the dragline is in the making of railroad fills. The method, which has been used for many years in doing this class of work, is to build a trestle over the location of the fill to be made. This trestle carries a track upon which dump cars, which have been loaded by steam shovels from the borrow pit, carry the material to the fill. This method is now being supplanted in many cases where the dragline can be used to better advantage.

Class 20 Dragline Ready to Dump

When a dragline is used, the machine travels in the line of the right of way, borrowing material from the side and placing it directly in the fill. Thus, the entire equipment necessary with this method is the dragline excavator. The steam shovel and its complement of dump cars, track and trestle are dispensed with.

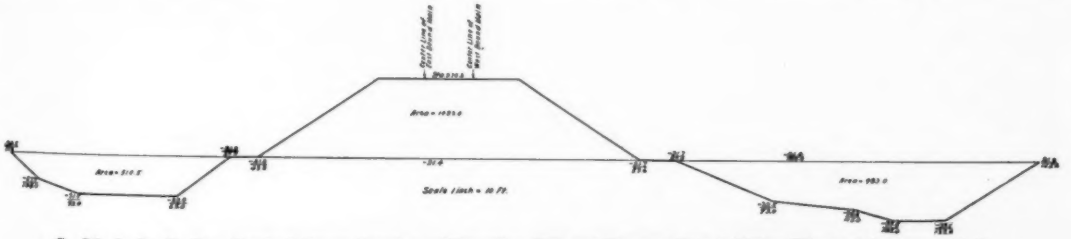
The dragline will not handle as much material as a steam shovel carrying a dipper of equal size but the decreased output is more than compensated for in other ways. The dragline requires but one operator and no train service with its added investment and expense of operation and maintenance.

As an example of dragline work on railroad fills we give a brief description of the work carried on by Morris, Shephard & Dougherty in connection with their contract with the C. M. & St. P. Ry. near Andover, South Dakota.

Two Bucyrus draglines were employed on this job, one class 20 with 85 ft. boom and one class 24 with 100 ft. boom, the bucket equipment being 2½ yards and 3½ yards respectively. The class 20 machine started work May 16th and the class 24 May 29th, 1912. The estimates of Mr. K. C. McFarland, Resident Engineer on the job, were as follows: for May, 11700 cubic yards; for June 98900 cubic yards; July, 156400 and August, 151000 cubic yards. The profile and cross-section cuts will show clearly the character of the work performed.

The material varied a great deal. In some places it ran about 80% blue shale rock and the balance black loam and very hard and dry yellow clay.

The engineers requirements were one tenth of a foot shrinkage but the contractors allowed considerably more than this, the amount on the heavy fills being one foot. Levelling was first carried on

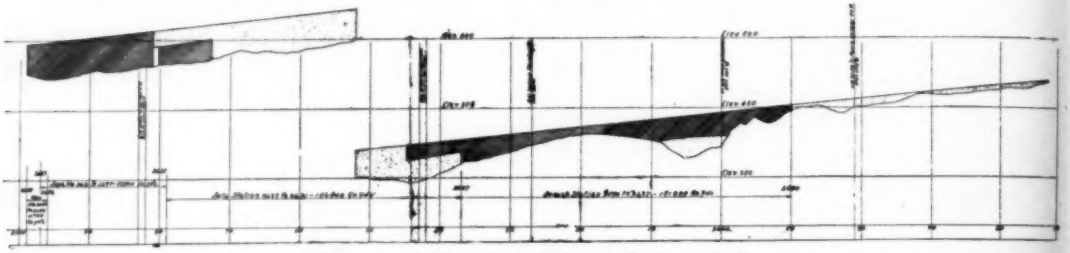


C., M. & St. P. Ry. Typical Cross Section of Dragline Fill and Borrow Pits 4 Miles West of Andover, S. D.
Morris, Shephard & Dougherty, Contractors. K. C. McFarland, Res. Engr.

Class 24 Swinging With Load

by a team and scraper following immediately behind the machines but later it was found advantageous to add a little extra dirt to the fill, permitting it to stand for a week, and then go over it with a team and Marmon scraper. The final operation was to drag a 90 pound rail over to level up the surface. The only hand work was squaring up the shoulders.

The contractors state that these machines during July, and August averaged better than one swing per minute for every working hour and that 84 swings per hour for the class 24 which had a 100 ft. boom was the fastest time recorded.



Profile of C. M. & St. P. Fill, near Andover, S. D.

Performance of a Caterpillar Traction Dragline Excavator in Mud

Some time ago we predicted that the practice of equipping dragline excavators with a caterpillar traction outfit was one that had immense possibilities. In our November issue we published an article describing the use of a Bucyrus Class 14 dragline excavator for stripping phosphate deposits near Mount Pleasant, Tenn. The Crow Contracting Co., who are doing the work found that on this particular job it was necessary to do a great deal of moving from one part of the field to another. Of course this is a very slow operation when the machine is mounted in the ordinary manner on skids and rollers, and is bound to consume a great deal of time in an unprofitable manner. Mr. T. W. Crow, therefore decided to try out a new caterpillar traction rig built by the Bucyrus Co. of which great things were claimed. The success of this outfit was at once made evident by a letter to the manufacturers written by Mr. Crow, an extract from which follows: "As to the caterpillar traction it is all and more than you have claimed for it. We gave it a very severe test on our first move, moving in a heavy rain through a cultivated field and climbing some grades that were over 10%".

This first evidence of its success under unfavorable conditions was brought home by another letter written some months later by the same gentleman,

Railroad Track at top of 11% grade crossed by Crow's Dragline Excavator.

in which he says: "The caterpillar has surely had a hard test lately and so far has come to the scratch; we are working in a corn field and it has rained hard

Bucyrus Class 14 Dragline Excavator Owned by Crow Contracting Co., Mounted on Caterpillars. This Machine is Stripping Phosphate at Mount Pleasant, Tenn.

for the past several days so that we had to have four big mlues to pull about ½ ton of coal to the machine, still the traction has pulled through it, though sometimes the mud was half way up the frames". From this very tangible evidence it behooves those of us, who, by reason of past doleful experiences under similar conditions, read the above with the eyes of one who hails from Missouri, to look further into this very wierd and unbelievable "Fairy Tale".

An Unusual Record in Loading Ore at the Mines of the Oliver Iron Mining Co.

We reproduce a photograph of Shovel No. 47340 owned and operated by the Oliver Iron Mining Co., in the Chisholm, Minn. district.

This machine is a 90-ton Atlantic type. On August 12th it loaded 180 cars of ore from a 12 foot bank in the Leonard Pit in ten hours time.

The weight of the ore loaded according to railroad weights was 6840 tons, 400 pounds or an average of 38 tons per car.

The ore loaded was limonite with hard seams through it but rather light in weight. This company states that the shovel has been used steadily for the past three years.

Class 80 Atlantic Type Shovel—Oliver Iron Mining Co.

The Excavating Engineer

[FORMERLY STEAM SHOVEL NEWS]

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Contributions bearing upon the practical aspects of the above work are solicited, and if accepted will be paid for at the usual rates.

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New Developments

While there seems to be a great deal of prospective work among the railroads, the last 30 days has seen an apparently small number of actual contracts closed.

There are rumors that the low grade line over the Tehachap Mountain between Majori and Kern City, California will soon be undertaken by the Southern Pacific. This improvement will cost in the neighborhood of $10,000,000 and the last right of way for it was acquired but a short time ago.

Plans for extending a branch line to the Chicago Milwaukee and Puget Sound Ry. are reported to be under way by the Chicago Milwaukee and St. Paul R. R.. which has recently secured this property. No doubt a large bond issue will soon be made by the latter corporation to provide the necessary finances for this extension.

A contract of approximately $1,000,000 for the construction of four of the Boylston Street subways has recently been let to the Hugh Nawn Contracting Co., 82 Savin St., Boston, Mass., by the Boston Transit Commission.

Track laying and ballasting for 125 miles of line for the Southern Traction Co. of Dallas, was recently let to Fred A. Jones Co., of Dallas, while A. L. Anderson Bros. of Altoona, Pa. were awarded a good size contract for work on the C. & C. Division in Cambria County, Pennsylvania. A contract embracing a quarter million dollars worth of work in connection with the Clark Avenue Viaduct of Cleveland, has recently been taken by C. H. Fath Construction Co. of the same City.

Phee Construction and Engineering Co., of Chicago, were awarded the contract for the river pier at the same time. Wm. P. Seaver, 322 5th avenue was recently awarded a contract involving nearly one million dollars in connection with the improvement of the Manhattan Plaza at Manhattan Bridge, New York City.

The Central Clay Drainage District of Piggot, Ark. will soon let contracts covering the ditching excavation of more than six million cubic yards and levee embankment work requiring the moving of more than 480,000 cubic yards.

Contemplated construction for the Georgian Bay canal will require an expenditure of between three and four millions of dollars. It is expected that this work will shortly be undertaken.

There is a considerable volume of work involved in contracts, which have recently been let by the United States Engineers Office at Rock Island, Illinois. Four contracts called for an expenditure of about $300,000. The successful bidders on this work being the Krichner Contracting Co. of Dubuque, Iowa,. The Builders Sand and Gravel Co. of Davenport, Iowa and A. W. Fetter of Quincy, Illinois.

It is expected the United States Government will soon be in a position to carry out improvements on existing projects or to undertake entirely new ones to the extent of thirty million dollars, as Senator Borah has recently introduced a bill providing for this work which is recognized as being necessary by most of our representatives in Congress.

Railroad Construction for 1912.

In commenting on the value of their annual statistics of railway construction for 1912, The Railway Age Gazette says—"While the prosperity of the railways is to a large extent reflected by the mileage of new lines and additional main tracks built in any year, such an index is quite inaccurate at the beginning or end of a period of inactivity and depression. The full effects of a general suspension of work are not reflected in the mileage of new lines completed the following year for it is necessary to continue many large projects to completion upon which large sums have already been spent. Likewise following a general resumption of construction work the full effects are not evident until at least the second year, for the larger projects cannot be completed the first season and do not enter into the reports for that year.

The latter condition exists this year. Upon the face of the returns, this has been an unusually dull year in railway construction. The returns gathered from reports made by the railways show that 2997 miles of new lines have been completed this year exclusive of second, third and fourth main tracks and side tracks. New tracks laid in reconstruction work to replace existing main tracks are also excluded. This is a considerable decrease as compared with 3066 miles completed last year and 4122 miles built in 1910, while the average for the 19 years previous to 1912 is 3842 miles. The completed mileage for this year is less than that for any year since 1897 when 2109 miles were built.

The indications for the coming year, however, are brighter than they have been for some time. There is probably more work going on at the present than at any time since 1907. With 2500 miles under construction and 2800 definitely projected we have no reason for complaining."

An Encouraging Sign

Few of us who are not directly associated in one way or another with the machinery of railway management have any conception of the multitude of requests for data and information made upon railways in this day of increasing regulation and publicity. The government calls for great masses of figures; the newspapers require the fullest details of accidents, and State authorities are constantly demanding information on this and that detail of railroading which affects the public. As a general rule the burden of this work is not and can not be the special duty of one man or one department. Hence it falls upon an officer as a task outside of his regular duties. The Railway Age Gazette in a recent editorial comments upon the pains and trouble to which these officers have gone in order to assist them in compiling figures for their annual statistics.

It remarks, "it is an indication of the general broader view of their reponsibilities that railroad men are coming to take that is worth recording".

Indications of improvement in conditions are subtle. They creep in here and there unnoticed by the mass of people who read and digest the sensational and defamatory things so loudly thundered abroad by the press.

Perhaps in the great scheme of things it should be so, or we would have no great pressure of public opinion to bring the erring to the mark. But it would be well if those of us, who are affected thereby to the extent of a growing lack of confidence in all public service and semi-public service corporations, could temper our views by the facts brought to light by instances such as this; facts which indicate that in the great majority of cases, the railways and corporations of this country are working with the interests of the public at heart.

Cost of Excavation at Panama Reduced

In his annual report for the fiscal year ending June 30, 1912, Col, Goethals, Chairman and Chief Engineer of the Isthmain Canal Commission, gives, as usual, the detailed costs per unit of work. That portion of this report covering the excavation in the Central Division, which includes the Culebra cut and most of the steam shovel work, should prove of interest to contractors. The details follow:—

Prism excavation, cu. yds.	16,917,662
Clearing	$0.0001
Drilling	0.0535
Blasting	0.0622
Loading	0.0492
Tracks	0.0885
Transportation	0.0734
Dumps	0.0423
Pumps	0.0041
Maintenance of equipment	0.0843
Plant arbitrary	0.0394
Division expense	0.0145
Total division cost	$0.5115
Administrative and general expense	0.0364
Total cost	$0.5479

The Engineering and Contracting points out that for the year 1911 the division cost was $0.588 per cubic yard. In the annual report for that year especial comment was made upon this low cost of excavation. The statement was made that because of the fact that fewer shovels could be operated and on account of the confined space for handling trains, this cost was not likely to be so low again. In spite of this, the last year shows a decrease of $0.0779 per cubic yard which is in itself a commentary on the manner in which this work is being handled.

Little River Drainage District Contracts Let

By all means the biggest drainage proposition ever undertaken in the United States is the Little River Drainage Project. The work will involve more than 40 million cubic yards of excavation and a sum of money bordering on $5,000,000.

Five counties in southeastern Missouri are involved and there will be upwards of 100 miles of main and lateral ditches.

Two of the main ditches will be 90 feet wide while the third will be 145 feet wide. The 72 lateral ditches vary in width from 10 to 30 feet.

Out of about 150 firms who were bidders on this work, 14 were recently awarded contracts.

Among the larger awards was one for the northern diversion channel to D. C. Stephens of Buffalo for 30 miles of canal, 50 to 112 feet wide and 40 miles of levee and removing the timber on 4,000 acres of land. The contract amounted to $1,229,704.

UMI

Field Notes

Ten Don'ts for Steam Shovel Engineers

By Griff Hughes

1. Don't swing your dipper after moving up before jacks are properly and safely set.
2. Don't depend on some one person to get your shovel track blocked before moving up, see to it yourself.
3. Don't expect foreman to be on the job at all times, when moving.
4. Don't get mad when you are breaking in a cranesman. Use good judgment by being patient.
5. Don't call him everything behind his back and tell to his face that he is doing all right.
6. Don't permit loafers with the fireman while shovel is working.
7. Don't do all the running yourself, break your men in for practical service.
8. Don't try and stop a man from working himself up if he looks worth while. He may prove a good find.
9. Don't show off while you have superintendents or strange visitors on the job. It doesn't pay.
10. Don't forget these are simple suggestions, but they are points worth while remembering.

Another Method of Pulling a Derailed Shovel on the Track

In our last issue we published a suggestion as to the most efficient method of pulling a derailed shovel on the track. This suggestion was based on the idea of attaching a chain or heavy rope to one link of the propelling chain and making the other fast to a tie ahead. An old shovel runner just informed us that this method will only work when the shovel is not badly mired. As a matter of fact, nine times out of ten the wheels are stuck firmly enough in the ground to cause the breakage of the propelling chain. The method of procedure he suggests is as follows:

If the front wheels are off the track, fill the dipper with rock or heavy material, loosen up one jack arm and swing the dipper over this side. This will raise the other side of the shovel. Put a number of men on the up side jack and tighten it down as hard as possible. Swing dipper over high side and screw down low side jack. Continue this operation until the shovel is off the center bearing. If there is a key in the king bolt the trucks will be raised off the track.

If the rear trucks are derailed, lay blocks in usual manner in order to assist the wheels to climb on the rails. If this is unsuccessful, drop the dipper and boost by means of the thrusting engines.

Simple Method of Reeving Hoisting Chain

When a hoisting chain breaks during working hours the usual custom is to repair it as well as possible and wait until Sunday or some other time when the shovel is idle to put on a new chain. This is a very heavy job and takes no end of lugging and pulling in order to get it over the sheaves. A very simple method to follow is to stretch the new chain on the ground so as to prevent kinks, etc. disconnect end of old chain from padlock, attach this end to end of new chain by means of an open link, then haul in. When the end is in to drum, disconnect old chain by reversing engine.

Connecting a Broken Hoisting Chain

When a hoisting chain breaks high up, a link that has been cut from the chain will be found to be more convenient to connect temporarily the two ends of the chain while it is being pulled in than an open, or "D" link.

Eveleth, Minn. A. O Sisson

"On the other hand", the story is told of a young lady from the north who, seeing a fig tree for the first time, exclaimed: "Why, I always thought fig leaves were larger than that"!—*Chicago Tribune.*

Hsu Pin-Cheu, the popular Chinese consul at San Francisco, discussed at a recent dinner his country's customs.

"There is one custom", said a young girl, "that I can't understand—and that is the Chinese custom of committing suicide by eating gold leaf. I can't understand how gold leaf can kill".

"The partaker, no doubt", smiled the consul, "succumbs from a consciousness of inward gilt".—*Zeneth.*

They tell the following as a story that the late J. T. Harahan, former president of the Illinois Central Railroad, was fond of telling on himself.

Mr. Harahan was sitting in his office one day, while president of the road, when a burly Irishman entered the office.

"Me name's Casey", said he. "Oi want a pass to St. Louis. Oi worruk in th' yar-r-ds".

"That is no way to ask for a pass", said Mr. Harahan. "You should introduce yourself politely. Come back in an hour and try it again".

At the end of the hour, back came the Irishman. Doffing his hat, he inquired:

"Ar-re yez Mr. Harahan"?

"I am".

"Me name is Patrick Casey. Oi've been workin' out in th' yar-r-ds".

"Glad to know you, Mr. Casey. What can I do for you"?

"Yez kin all go to hell. Oi've got a job an' a pass on th' Wabash". —*Everybody.*

Boiler Efficiency

According to an editorial in a recent issue of The Saturday Evening Post headed "Throwing Away Coal"—"A report by the Bureau of Mines shows that we took about half a billion tons of coal from the earth last year, and in doing it left underground, in such condition that its recovery is highly improbable, a quarter of a billion tons. For every ton we get to the surface, we throw away half a ton. Having got our ton to the surface, we extract only about ten per cent. of its energy. Partly, this is because we don't know any better—not yet having discovered more economical methods of converting the latent energy into mechanical power. But where we do know better we fail to act upon the knowledge. Thus, a sixteenth of an inch of scale in a boiler means a loss of twenty-five per cent. in efficiency, and the waste from boiler scale in locomotives alone is estimated at fifteen million tons of coal a year".

Read it again!

"A sixteenth of an inch of scale in a boiler means a loss of twenty-five per cent. in efficiency, and the waste from boiler scale in locomotives alone is estimated at fifteen million tons of coal a year".

Think of it, Mr. Power User, more than the entire coal production in the state of Indiana!

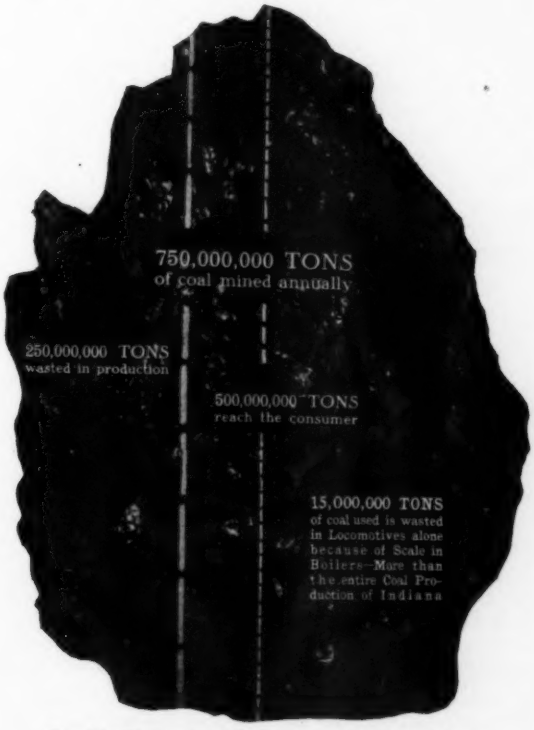
What is said about locomotive boilers is equally true of all boilers in which steam is made.

Every day that you furnish your boiler with hard and impure water, every day you are throwing away coal—throwing away money.

Hard and impure feed water means scale; scale means bagged and burnt tubes, leaky boilers, possible explosions, cleaning expense, extensive repairs, loss of fuel—a drain on your profits.

There are various methods of preventing incrustation—filtration, blowing off, and boiler compounds, etc., but the logical method of eliminating the troublesome ingredients is the chemical treatment of the water outside of the boiler.

Eureka Water Softener made by The Dodge Mfg. Co.


750,000,000 TONS
of coal mined annually
250,000,000 TONS
wasted in production
500,000,000 TONS
reach the consumer
15,000,000 TONS
of coal used is wasted in Locomotives alone because of Scale in Boilers—More than the entire Coal Production of Indiana

Graphic Illustration of Uneconomical Use of Coal.

Boilers are purchased to produce steam, not for scale making purposes.

Soft water is boiler salvation. A Water Softening and Purifying system will put your water supply on the safe side for only a penny or two per thousand gallons. It is impossible for scale to form under this process.

Manufacturers who are using apparatus report a saving in fuel of from 10 to 20 per cent., and in addition the elimination of all worry and trouble.

These machines work automatically with little attention each day, and the cost after installation is very small.

Alexander Milburn Co. Change Address

The Alexander Milburn Company of Baltimore, have just moved to their new premises Nos. 1420-22-24-26 West Baltimore Street. For some time past they have been operating under considerable difficulty on account of having insufficient space. Less than two years ago they increased their space materially by taking in an additional building at their former location, on Lombard Street, at which time they anticipated having ample room to serve them several years, but owing to their increased requirements it was necessary to seek new quarters. Their new premises were purchased in late summer and have been converted into a most modern building for their factory and offices. The Milburn Company are extensive manufacturers of various kinds of Acetylene Apparatus, including Portable Lights, House Lighting Machines, Oxy-Acetylene Welding & Cutting Plants and the Steam Acetylene System for locomotive headlights.

Photographic Contest

The Alexander Milburn Company, 1420 West Baltimore Street, Baltimore, Maryland, manufacturers of the Milburn light, are offering a cash prize each month of $25.00 for the best photograph or sketch of work where the Milburn acetylene lighting apparatus is in use. The pictures may be of either day or night scenes, and of any class of work where the apparatus is employed.

Photographs or sketches should be addressed to the Milburn Light Photographic contest, 1420 West Baltimore, St., Baltimore, Maryland. Care should be taken that the name and address of the sender accompanies each entry.

A check for $25.00 will be mailed to the successful competitor on the 20th of each month following the receipt of the picture.

J. B. Carr Co. Reorganized

In announcing the reorganization of the J. B. Carr Company, manufacturer of cable, shipping, crane, dredge, quarry and rafting chains, Troy, N. Y., it is stated that John H. Woodhouse, for many years manager of the Woodhouse Chain Works, Trenton, N. J., enters the company and assumes entire control of its affairs. The long and successful experience of Mr. Woodhouse brings to the company a thorough, practical working knowledge of the chain business.

REVIEW OF BOOKS and CATALOGS

We shall be glad to review in this column such books and catalogs as are sent to us. Books reviewed in these columns will be supplied by The Excavating Engineer Publishing Company at the prices named.

McCord Mfg. Co., Detroit, Mich.—Catalogue 6 x 9", 92 pages, standard size, illustrating and describing, the force feed lubricator, the stationary and marine engines, air compressors, et cetra.

McCord Mfg. Co., Detroit, Mich.—Pamphlet 5¼" x 8" describing the McKim gasket and covering a number of testimonial letters from leading concerns who are using these.

McCord Mfg. Co., Detroit, Mich.—Catalogue 4½ x 7¼" illustrating and describing the various kind and sizes of McKim gaskets, 16 pages.

Goods Roads Machinery Co., Ft. Wayne, Ind.—Catalogue 6¾ x 9⅜" 46 pages, describing rock crushers, screens, elevated road machinery, including traction engines and road rollers, street sprinklers, dump cars, et cetra.

Good Roads Machinery Co., Kennett Square, Pa.—Catalogue 6¾ x 9⅜", 48 pages, describing champion steel rock crushers, portable crushing, screens, conveying machinery and the Monarch hauling engine together with a complete line of road machinery.

A. O. Norton, Inc., Boston, Mass.—Catalogue standard size 6 x 9" 56 pages. This catalogue describes the Norton high speed, bearing and journal jacks manufactured by this concern.

Vulcan Iron Works, Wilkes-Barre, Pa.—Catalogue standard size 6 x 9" 144 pages. This is a splendidly printed catalogue profusely illustrated showing all of the different types of locomotives built by the Vulcan Works. It gives a great deal of useful data to contractors who may contemplate the purchase of locomotives. The Vulcan Company build machines ranging in weight from 8½ tons to 85 tons and for all classes of service.

J. S. Mundy, Newark, New Jersey—Catalogue 11 x 8" 104 pages. This catalogue is profusely illustrated and gives complete description and list of the sizes of the various hoists, engines, derricks and other contractors machinery manufactured by this concern. There are some very interesting pictures showing and illustrating the electric hoisting apparatus which is now coming into such general use. It also shows various types of hoists driven by gas motors.

Fawcus Machinery Co., Pittsburgh, Pa.,—Bulletin 7 x10, 8 pages describes cut herring bone gears.

Alabama

Baton Rouge—O. O. Ogden, formerly with Morris, Shephard & Dougherty of St. Paul, Minn., and who has just completed a large contract on the C. M. & St. P. Ry. near Andover, S. Dakota, is now in the employ of the Southern Dredging Co. of Mobile. Mr. Ogden is preparing to do the levee work which has just been let to the Southern Dredging Co. The contract embraces 63,000 cu. yds. on the Bayou Sara levee 15 miles above this city, 40,000 cu. yds. near Bagatelle and 170,000 cu. yds on the Germania levee.

Two class 24 Bucyrus draglines with 100 ft. boom will be used on the work and will be operated by Hugh Glenn of Minneapolis.

California

Los Angeles Notes

Robt. Sherer & Co. have just taken a good sized contract constructing levees for the Graham Lands Company. All team work.

Lee Moor, 310 Missouri St., El Paso, Arizona, has just taken a contract from Sharp & Fellows Co. for a lot of double tracking work on the Santa Fe over Cajon Pass. This work consists of tunnels and some heavy cutting. He is planning to use two steam shovels, four dinkeys and a string of cars. They are at present establishing camps about 25 miles east of San Bernardino.

Mr. Lee Moor was in town recently and is looking up equipment, in connection with his double tracking on the Santa Fe.

Joseph Rowan, Jack Harriman, Flossy Baker, Thos. Cain, and A. McFadden, steam shovel engineers, got so full—Of Turkey—on Thanksgiving day in Los Angeles that it was four days before some of them were able to get out of town. John O'Donnell and John Anderson were also in for Thanksgiving. We are informed that John Anderson is practically laid up on account of rheumatism.

Canada

Newtonville, Ontario—F. H. Price is craning a Bucyrus steam shovel for Johnson Brothers at this place.

Lac O Shea—A. Dinner, is engineer and Dan Paulado cranesman on the McDowell and O'Brien 70-ton Bucyrus shovel being used in the work for the National Trans-Continental Railway at this point.

Toronto—G. A. Tees and E. Hines are running a class 43-2½ Atlantic at Bowmanville for Stein & Reade on the C. P. R. "Toronto to Montreal" Line.

Winnipeg—Messrs. John Gunn & Sons of Winnipeg have installed a No. 0 Vulcan revolving steam shovel for stripping work at their quarry near Stonewall, Manitoba.

Winnipeg—The contract for the last section of the Hudson Bay Railway from Spit Lake to Hudson Bay, 165 miles long, has been awarded to J. D. McArthur, Winnipeg. Work on this section is being pushed vigorously and it is estimated that the line of the Hudson Bay will be completed by 1914.

Saskatoon—Tom Hawkins is once more on the job. This time its a Model 50 Marion digging a trench for sewer. Must be a dirty job because Tom says "someone put a package of Gold Dust, one of Berline and two bars of soap in his water tank".

The gink that did that job must have taken Tom for a chinaman and the shovel for a laundry.

Tom said the boiler foamed some. Sure! It probably got hot at the suds.

But this was not all. The thrust engine refused to thrust and on investigation Tom found the poor things' exhaust line plugged. Gee! But someone must have loved that Marion shovel.

However, Hawkins is some plumber as well as laundryman and soon had her going although she sounded like a man with chronic asthma trying to climb a ladder. This little difficulty can probably be cured by a gallon or two of vaseline added to the water.

Florida

Fort Pierce—Collins & McKenzie were low bidders on some drainage excavation work near Fort Pierce, Florida. This work consists of about a 1,000,000 yards of excavation and will necessitate the use of two drag line excavators. The above company have quite an amount of work under way now in Florida and are operating a drag line machine on one of these jobs.

Pierce—Merritt & Gilbert are operating their 70-C Bucyrus double shift. W. E. Trapnel and M. E. Sutton are engineers and M. M. Sutton and Wm. Thornton are the cranesmen on the machine.

Lorett—John W. Lewis, an old steam shovel engineer and cranesman is back home again. John says he is keeping his weather eye open for another good connection.

Foreign

Panama—The contract for construction of a new railway at Panama is reported to have been awarded to the Central American Construction Co.

J. G. White & Company, Inc., have received telegraphic advice of the award to their London associates (J. G. White & Company Limited), of railroad construction work in the Argentine, amounting to about $4,000,000 from clients for whom they have carried out several previous contracts; this new contract, like the others, being on their usual basis of cost plus a fee.

The railroad to be constructed constitutes the connecting link in the through system between Brazil and the Argentine Republic, with termini at Buenos Aires and Rio de Janeiro.

Georgia

Macon—Wright & Wadley of Macon, Ga., have taken some heavy steam shovel work on the Norfolk Southern Ry., from the Kenefick-Hoffman Company near Charlotte, N. C. and are putting in a standard gauge outfit.

Augusta—J. G. White Company of New York have a contract for building a two million dollar dam at Stevens Creek, near Augusta, Ga., and are now getting material and equipment on the ground, having built a seven mile railroad to serve this purpose.

UMI

Atlanta—The Morrow Transfer & Storage Company of Atlanta, Ga., have been making quite a record on the Southern Ry., filling trestles with a new 60-C Bucyrus shovel and an equipment of 6-yard standard gauge Western Dump Cars.

Atlanta—J. M. Collins, one of the best shovel men in the country is in the Hospital in Atlanta as the result of a fall from the boom of a shovel on the Parker-Brooks work in Greenville, S.C

Augusta—Messrs. A. J. Twiggs & Son of Augusta, Ga have just been awarded contract by the City of Augusta for building the protection levee there and will install a 70-C Bucyrus shovel and 16 standard gauge 12-yard Western Air dump cars. The work awarded them is the first section of the levee. The remainder of the work is to be let later.

Sarannah—The Westinghouse, Church, Kerr & Co., have been awarded contract to construct the Brinson Railway Company's extension from Waynesboro to St. Clair, a distance of 12 miles.

Hawaii

Honolulu—Hawaiian Dredging Company of Honolulu has been awarded contract for dredging at Kahului Harbor at 49½ cents per cubic yard. Bids for Hilo Harbor dredging were all rejected as being too high. W. P. Wooten, Major, Engineer.

Illinois

Chicago—John G. Berquist, Works Manager, of the Universal Portland Cement Co. has resigned that position. A connection with the Company will be maintained by Mr. Bergquist who will hereafter act in the capacity of Consulting Engineer. Leonard Wesson, Superintendent, Plant No. 2, South Chicago, Ill., has been transferred to the general office of the Company to assist President Edward M. Hagar in matters relating to appropriations, construction and operation. Mr. Wessen will have the title of Assistant to President. Nels Nelson who has been Assistant Superintendent of Plant No. 2 has been promoted to the position of Superintendent of that Plant.

Forreston—A. C. Upper is operating, H. F. Jentz is craning and F. E. Fitzpatrick is firing an Atlantic Type shovel for the Illinois Central Railroad at this point.

Morrisonville—Contractor E. J. Fitzgerald has a sub-contract for 7 miles of work on the new Frisco extension near Morrisonville, Ill., under Griffith & McMurray.

Morrisonville—Griffith & McMurray, Sharp Bldg., Kansas City, Mo., have started work on their new Chicago & Eastern Illinois Railroad contract near Morrisonville, Ill.

Lockport—The Great Lakes Dredge and Dock Co., of Chicago have shut down their rock plant at Lemont after a very successful season. Their 70-ton Vulcan shovel has been in continuous operation for eight months, part of which time a night and day shift was used. Al. Keckles was engineer, M. Polsky cranesman and P. Driscol fireman. All good men.

Pekin—W. G. Morrison is now craning a Bucyrus Shovel for Winston Bros. at Camp No. 2 near this City.

Elgin—Engineer Chas. Supernaw is now at 1103 Bellevue Ave., Elgin. He is operating a Little Giant Vulcan Shovel here.

Indiana

Anderson—Two contracts have been let by the Union Traction Company, one to the Fisher-Welch Construction Company of Indianapolis, Ind., for the heavy work between New Castle and Oakville, and the other to Frank Hines, South Franklin St., Muncie, Ind., for the lighter work between Oakville and Muncie.

Linton—T. B. Huddlestun, who was associated with the Big Four Railroad Co. as cranesman some time ago, is now operating a dredge at this point.

North Manchester—Billy Kohn is running the 70C Bucyrus steam shovel for Eyre J. Shoemaker, Inc., contractors for the double tracking of the Erie Railroad at Bolivar. R. S. Patton is craning for him. William thinks that the Excavating Engineer is the best ever and proposes to help boost the subscription list. Here's to Bill—We like his kind.

New Castle—Zerkle & Manifold, local contractors, have a sub-contract to construct the heavy Honey Bee grade in the vicinity of Springport. James Norton has a sub at Mt. Summit.

Iowa

Turkey River—Joe Swigart has closed a small contract with the C. M. & St. P. Ry. Co. for work on a passing track at this point. His dragline excavator is a Class 14 Bucyrus.

Legrand—Charles Hischer and Otto Mischke are operating a 110C Bucyrus shovel for Dolise Bros,. at their stone quarry near here.

Madrid—Mr. C. W. Marshall of this city has finished work at this point and is moving his equipment to Browns, Ia., at which place he has taken a contract from the Walsh Construction Co., for double track work on the C. M. & St. Paul R. R.

Rhoades—Shreggart & Tarrant have finished the contract on the C. M. & St. P. R. R. which involved grading for double track work. Mr. Tarrant is now spending the winter with his family in Chicago and, although the winter is only half gone he is getting nervous to get back on the work again. Anyone who knows Mr. Tarrant knows he does not like to be idle very long as he is a hustler.

Davenport—P. T. Walsh of the Walsh Construction Co. has left for California to spend the winter. Mr. Walsh shipped his auto direct to Los Angeles, his chauffeur also being sent direct to that city while Mr. Walsh and family will go via New Orleans. He contemplates making a lenghty tour among the many attractive resorts in Southern California. It is quite unnecessary to wish them a good time as no man knows how to enjoy himself better than friend Walsh and he is deserving of all the pleasure he can get.

Madrid—J. A. McDougal & Son of Chicago have just finished a large contract in double tracking on the C. M. & St. P. R. R. The time for finishing this contract was July 1st, 1913 but, with their usual energy, good equipment and good weather, they were enabled to complete the work six months ahead of contract time. Their equipment is one of the best in the country and was purchased new for this work. It embraces a 70-C Bucyrus shovel, Western dump cars and Porter locomotives.

Mr. McDougal is one of the best known contractors in the country and was formerly of the firm of McDougal & Yale of Milwaukee.

Keystone—Shuggart & Cox have just finished their contract on the C. M. & St. P. R. R. The work was double tracking.

Kansas

Items From Pittsburg.

Coal stripping operations are now in a prosperous condition in the Kansas coal fields, the following firms and coal companies are operating steam shovels as follows:—

The Ellsworth Kaluer Co.	4	Smith Scott & White	2
J. R. Crown Coal Co.	1	Junior Coal & Mining Co.	1
J. J. Stephenson Coal Co.	1	Pittsburg Scammon Coal Co.	1
Besse Cockrill Coal Co.	1	Miller Durkee Coal Co.	1
Pratt Durkee Coal Co.	1	Pittsburg Brick Co.	1
Roy Millner Coal Co.	1	C. H. Markhaw Coal Co.	1
W. W. Patterson Coal Co.	1	SternbergCoal & Mining Co.	1
Packard & McWilliams	1	Haynes Coal & Mining Co.	1
		Total	20

A total of 20 shovels are now working and two more being installed, one for Smith, Scott & White and one for the Clemens & Son Coal Co. These 20 shovels have capacity to strip 5,000 tons of coal per day or 100,000 tons per month, which shows a rapid development in this method of mining coal within the past two years.

Morley—Frank McGillicudy has just completed a 100,000 yard contract on the double tracking of the C. M. & St. P. R. R. and has moved to Delevar Junction where he has a contract embracing about 120,000 cu. yds. of earth fill.

The Besse Cockrill Coal Co. of Weir City have installed a small revolving steamshovel ¾ yard dipper for loading the coal into 3 ton tram cars, which is working satisfactory. The vein is 3 feet thick; the coal is slightly shook up with powder so that it handles easily. We believe this method will come into general use.

Smith, Scott & White, who have a large coal stripping contract with the Central Coal & Coke Co. started two of their big Bucyrus steam shovels last week in a field about 6 miles from Pittsburg. These shovels are of the revolving type, weigh 185 tons and carry 3½ yard dippers, the overburden is 27 feet deep.

The Pittsburg-Scammon Coal Co. of Pittsburg, J. J Stephenson President; A. H. French Sec'y. and Harry Miller Manager, are operating a new 150 ton Bucyrus steam shovel, 1½ miles south of Scammon, opening up a new field. The stripping is about 15 feet deep, at present.

The J. J. Stephens Coal Co. is installing a small revolving steam shovel for loading dead coal in their North Pittsburg field, which gives promise of satisfactory results This coal is used by Zinc Smelters in reducing the ore.

The Ellsworth Kaner Co. has installed a 75 ton Bucyrus steam shovel 2½ yard dipper, 38 foot boom, on O. S. Huberts coal field near Fuller for stripping the shallow overburden which is from 8 ft to 12 ft. thick.

The Sternberg Coal & Mining Co. of Kansas City has also installed a 75 ton Bucyrus steam shovel 2½ yard dipper, 40 foot boom on their new coal field at Minden. The stripping is from 10 ft. to 15 ft. thick. John Train is Supt. in charge of the work.

Frank Wilkinson of the Bucyrus Company is in charge of the erection of the 3 big revolving shovels being installed by Smith, Scott & White. Ed. St. John and Alfred LaRue, steam shovel engineers, are operating the two shovels now working. One of these machines has a 4½ yard drag line bucket the other a 3½ yard dipper. Both have 75 foot booms.

John Elliott has finished erecting the new 150 ton Bucyrus steam shovel for the Roy-Millner Coal Co. at Weir City, and C. H. Brooker will run it.

Lee Bigley is engineer and Mike Flaherty cranesman on the Pittsburg-Scammon Coal Co's. new Bucyrus steam shovel near Scammon.

Dan Millers 95 ton steam shovel has been overhauled and is now doing fine work stripping dead coal near Scammon. This field presents an interesting demonstration of the new method of stripping coal and parties interested would do well to inspect it.

Chas. Arnold is running the 95 ton Vulcan for the Pratt, Durkee Coal Co. at Skidmore. The stripping is 20 feet deep.

C. R. Davis is engineer and C. B. Ticheler cranesman on the model 250 Marion shovel for the Besse-Cockrill Coal Co. near Weir City. Oscar Hester is running the small shovel loading coal.

M. Adams is engineer and Robt. Wilson cranesman on the Junior Coal Co's. steam shovel about 3 miles north of Weir City.

Bruce Weekly is engineer and C. B. Tinker cranesman on one of the big Marion steam shovels for the Ellsworth-Klauer Co. near Chieope, 6 miles from Pittsburg. W. Jones and Fred Tungate are running the other at the same place.

O. E. Sauer is engineer and Warren Little cranesman on the J. J. Stephenson Coal Co's. steam shovel at north Pittsburg.

C. O. Dunbar is engineer on the model 250 Marion steam shovel for the Ellsworth-Klaner Co. at Midway north of Pittsburg.

Elmer Kenney is engineer and Fred Gebhardt cranesman on the Bucyrus 150 ton steam shovel for the C. H. Markham Coal Co near Curranville.

Jas. O. Green is engineer and A. Chancellar cranesman on the Marion steam shovel operated by the W. W. Patterson Coal Co. near Alston.

Wallace Wright is engineer and Geo. Rogers cranesman on Packard & McWilliams Marion steam shovel near Fuller.

W. E. Rogers is running Ellsworth & Klaners Bucyrus steamshovel near Fuller, recently installed.

Wm. Nostrant is running the 95 ton Vulcan steam shovel for the Haynes Coal & Mining Co. at Ardath, about 18 miles north of Pittsburg.

The weather at Pittsburg has been ideal for coal stripping operations during the past two months but little rain and quite cool at times. The demand for coal continues good.

Kentucky

William[illegible]n—Ridenour & Billiter of this city, who recently secured about one-half of the work in double-tracking the Q. & C. between Erlanger and Williamstown, report their work as being all sublet and that good progress is being made It is expected that the contract will be completed early in the spring.

Winchester—R. T. Morgan is running a 70-C Bucyrus steam shovel for Johnson-Briggs Co. on the first section of the L. & N. cut-off contract. A. C. Ward is craning for him. Carl Coiner is running a 70-C Bucyrus at No. 2 camp of Johnson-Briggs.

Millers Creek—R. Tilson is operating a Bucyrus steam shovel for John B. Carter at this place.

Idleburg—W. H. Mason is dumping shovel foreman for John B. Carter Co. who are doing work near this place. They are operating a 70-C Bucyrus machine.

Louisiana

New Orleans—Willis & Lindke of this city are at work enlarging existing Mississippi river levee seven miles below this city. About 70,000 cubic yards are involved.

Abbeville—Capt. Louis Angers of New Iberia, La., has contract to excavate a large canal in the Coulee des Jonc Drainage District from the north prong of Schooner Bayon in the direction of Kaplan.

New Orleans—Contracts have been awarded as follows for building of approximately 25,000 cubic yards of new levee in Plaquemines Parish; Bulot levee, 4,500 yards, to Patrick H. Lyons of New Orleans, La., at 21.9 cents; Taylor levee, 4,500 cubic yards, to Patrick H. Lyons, at 21.9 cents; Rapp levee, 16,000 cubic yards, to Wilmer Henritzy, New Orlenas, at 17.97 cents per cubic yard.

New Orleans—Contracts for levee construction have been awarded by the Board of State Engineers as follows: Parish Line, 3,000 cubic yards, to Borug & Serpass, Arabi, La.; Pat Cash, 13,000 cubic yards, Bossier City, 10,000 cubic yards, Belcher, 10,000 cubic yards, to J M. Montgomery, Benton, La.; Gardiner levee, 25,000 cubic yards, to Irwin McGinnis, Alexandria, La.; Sunflower, 95,000 cubic yards, Mercer, 47,000 cubic yards, to John G. Sessions, Swiftwater, G. W. Lawes, Secretary.

New Orleans—Mitchell & Boone, 2646 Banks St., New Orleans, La., were awarded contract by the Commissioners of the Orleans Levee District for construction of the Orleans canal, east bank and Lake Shore levee; contents approximately 48,500 cubic yards of earth at 39¼c and 24¾c per yard. C. J. Donner, Secretary.

Massachusetts

Palmer—Massachusetts can boast of a "cussless" railroad gang. It is the construction camp ruled over by Gustav Landberg, Swedish by birth, but Chicagoan by residence, who is building the first five miles of roadbed for the Grand Trunk extension from Palmer to Providence, R. I. Landberg is a member of the International Bible Students' association and runs his camp according to the golden rule.

How about it Gus.? (*Evening Wisconsin*)

Chester—W. I. Shilloto is operating a Bucyrus steam shovel for the Washington Construction Company between Chester and Middlefield.

Mexico

Mexico City—H. M. Stringfellow, Civil Engineer is now located with the Mexico Tramways Company. His address is Apartado 124 Bis. Mexico City.

Tampico—Geo. W. Williams has been erecting a 70-C Bucyrus Steam Shovel for the National Railways of Mexico. George says from his own observation he concludes that 50 good American lads could clean up that section of the country. And when it comes to cranesmen the natives surely are cracks. The one furnished him for the shovel was told to watch the water gauge glass and he asked George where it was. In dramatic tones he replied "on the dipper".

Michigan

Sault Ste. Marie—Mr. S. B. Martin of this City has recently sold his Fiborn Quarry property and equipment to the Fiborn Limestone Company of Sault Ste. Marie, Ontario, and has organized a new Company which is styled the "Martin International Trap Rock Company Limited", under the laws of Ontario, with American Office in the Adams Building of this City. The Quarries of the new concern are located at Bruce Mines, Ontario, where they have seven hundred acres of the very best of trap rock. One of the most modern and largest crushing plants in North America is to be erected at said quarry. The crushing machinery has been purchased of the Power and Mining Machinery Company of Milwaukee, and will consist of a

60 x 74″ jaw crusher,

two No. 9 gyratory crushers,

two sets of 24 x 48″ rolls, and necessary screens and conveyors to screen the stone in six different sizes and deliver it into stock piles of seventy-five thousand tons capacity, and load from the stock piles into boats at the rates of twenty-five hundred tons per hour. Capacity of plant will be from five to six thousand tons daily.

The steam plant will consist of two Vertical Water Tube Boilers equipped with Jones Underfeed Stokers and Foster Superheaters, Boilers and one Cross Compound Lentz Patent Engine of one thousand horse power, equipped with Blake Condensers, built by the Erie City Iron Works, Erie, Pa., and Worden-Allen of Milwaukee, Wis., have contract to furnish the structural steel work. Kilbourne and Jacobs of Columbus, Ohio, have contract to furnish forty-eight yard automatic lock quarry dump cars.

There are now at work in the quarry two Number 4 Clipper drilling machines, made by the Loomis Machine Company of Tiffin, Ohio, especially built for this particular quarry. Two 110 C shovels from the Bucyrus Company of South Milwaukee, one which has been shipped and the second will follow during the summer of 1913. There is also on the ground at present at work one Brown Hoist Revolving Crane and one Industrial Revolving Crane, both used in construction of the plant. The Vulcan Locomotive Works of Wilkes-Barre, Pa., are supplying two forty-five ton saddle tank locomotives for hauling stone from steam shovel to crushing plant.

$400,000.00 will be spent in equipment of the plant. Mr. Martin has contract to start shipping stone by April 20th, at which time said plant will be in operation. The entire equipment will be turned over to the "Martin International Trap Rock Company" a corporation organized by S. B. Martin.

Kalamazoo—The Michigan & Chicago R. R. Co. is reported to have petitioned the State Railroad Com. at Lansing, for permission to begin work on the line to be built between Kalamazoo and Grand Rapids.

Houghton—P. J. Boyle, of Gilbert, Minn. has resigned his position on the engineering staff of the Republic Iron & Steel Co. and will enter the real estate business in Duluth, Minn.

Carlisle—Shelby Borhum has just finished the contract on the electric line between Kalamazoo and Grand Rapids. He is now moving his equipment to Prairie Du Chien, Wis., where he has a contract on the double tracking of the C. B. & Q. R. R.

Detroit—The lowest bid submitted to Lieut. Col. Patrick, U. S. Engineer, for dredging and deepening work on the lower end of Ballard's reef channel, in which there is involved an area of 391,000 square yards of channel to be improved, was that of C. H. Starke Dredge & Dock Company, Canal Street, west of First avenue, Milwaukee, Wis., at $2.34½ per square yard for dredging and deepening and 34½ cents for cleaning and sweeping the bottom.

Marquette—The Steel Corporation's Monroe mine at Chisholm is to be stripped of its overburden and it is the understanding the work will be started at once. It is intended to utilize equipment lately in commission at the Hull-Rust property at Hibbing. In the same Chisholm district the contracting firm of Winston & Dear is engaged in stripping one of three mines, the development of which has been started by the Great Northern's subsidiary Arthur Mining Co. There are in the neighborhood of 6,000,000 cu. yds. of ground to be excavated at this latter tract, a work which will take over 2 years to finish. A prospective

important stripping operation is the removal of the overburden at the Steel Corporation's Ark Terrace property near Marble, at the western end of the range. This tract is counted upon to take the place of the nearby big Hill mine, one of the Great Northern properties to be surrendered. It formerly was a possession of Mrs. Hetty Green of New York. In Sec. 9, in the same locality, Pickands, Mather & Co. have a deposit which, according to reports, is to be developed, commencing next season. While the Shenango Furnace Co. shipped approximately 1,500,000 tons of ore from the Shenango pit and shaft and the Webb mine at Hibbing this year, it is the reported intention to produce 2,000,000 tons next season. Close to 1000 men are employed at present and under-ground mining is being pushed vigorously.

Minnesota

Greenbush—Fred Brown, of Eveleth, Minn., who has been employed as cranesman on a steam shovel at Greenbush, Minn., for the last four or five months has returned home to spend the winter.

Duluth—Mr. George Chamberlain of the Great Northern Ore Co's. civil engineering staff, visited in the town of Marble, Minn., Oct. 10th.

Marble—Mr. Wm. Curley and Mr. L. A. Harlacher, representing the engineering department of the Oliver Iron Mining Company, were recent callers at Marble, Minn.

Duluth—Mr. E. E. Crane, of Chicago, representing the Edgar Allen American Manganese Steel Company, called at the Duluth office of the Bucyrus Company, on his return from a trip to the Range.

Duluth—The contract for the double tracking of the Great Northern track between Congo, Minn., and Wawina, Minn., both of which points are on the main line of the Superior-Missabe division, has been let to Carl Hall & Co., of Duluth. According to the announcement of the plans, work on the new track will begin this winter, the contract calling for the completion of the work early in the Spring. The double tracking will be for a distance of twenty-four miles.

The completion of the work will give the Great Northern a double track line from Superior to Swan River and will result in a great lessening of the congestion of the ore traffic. It is stated that the heavy ore traffic of the present season lead the officials of the road to the belief that the work now contracted for was necessary.

International Falls—Salem Mageau, of Crookston, Minn., was recently awarded a contract for the construction of a ditch eleven miles long, consisting of the removal of 72,000 yards of earth, at International Falls, Minn.

Duluth—Arrangements are reported to have been completed whereby the first stripping on the Cuyuna range will soon be underway. George H. Crosby, of Duluth, acting for the Whitmarsh Mining Co., has transferred the Pennington mine, in Section 10, T. 46, R. 29, to the Tod-Stambaugh Company, well-known operators on the Mesabi and Michigan ranges. It is said that orders have already been issued for the assembling of the necessary stripping equipment, and that a steam shovel will be on the ground in a few weeks, to be followed soon after by another. The company is expected to open an office at Crosby, which will be the range headquarters. J. S. Lutes, who has been superintendent of the company's Biwabik mine on the Mesabi range, will be general manager of both the Biwabik and Pennington mines, the latter having been named in honor of Edmund Pennington, president of the Soo Line. The reported intention of the company is to ship 200,000 tons from the property next season. The development to have an important bearing on the future development of other properties on this range, heretofore regarded as outside the scope of stripping possibilities.

Duluth—The Minnesota Equipment Co., has recently purchased the entire plant of Drake and Stratton. This is one of the largest contracting outputs in the country, consisting of 78 narrow gauge locomotives, 14 steam shovels, 25 miles of rail, more than 500 dump cars, a large machine shop and other miscellaneous items. The plant is one that was used by the Drake & Stratton Co., in their stripping operations on the Range at Hibbing.

The Birmingham Rail and Locomotive Co., purchased the Drake and Stratton Co. equipment located at Columbus, Ohio, Alaquippa, Pa. and Mt. Union, Pa., consisting of locomotives, steam shovels, and air compressors. These machines have been taken to Birmingham, Alabama, where they will be thoroughly overhauled in the shops of this concern.

St. Louis Park—F. H. Wallace is running a 45 ton Bucyrus steam shovel for F. J. Mann contractor in grading a fill for the new yards of the C. M. & St. P. R. R. This work will require about two months time to complete after which time the machine will be removed to the Hand D. Division of the St. Paul Road, and a contract involving 275 thousand cubic yards of sand to be used in double tracking the system.

Duluth—Butler Brothers, who have a contract for stripping the Longyear Mine, amounting to about seven million yards, have closed down all their shovels on this work, for the winter, with the exception of one. This shovel they will probably keep working all season.

Duluth—Winston-Dear Company, stripping contractors on the Range, are going to work all winter on the stripping contract they have at the Adams Mine, near Chisholm, Minnesota, but will suspend work on the Buffalo Susquehannah Mine, near Hibbing, Minnesota.

Hibbing—Mr. William M. Tilderquist, of Hibbing, Minn., who for the past two years has been superintendent of the Hibbing district west end mines of the Oliver Iron Mining Company, has resigned his position owing to ill health, and will remove to Duluth in a short time. Mr. Tilderquist will be succeeded by Mr. Wm. F. Pellenz who formerly held the position of superintendent of the Sellers mine belonging to the Oliver Iron Mining Company.

Duluth—Mr. Edwin J. Collins, Mechanical Engineer, has returned to his home in Duluth from a ten days' business trip in Nevada.

Duluth—Mr. William Wearne, superintendent of the Laura and Grace mines, of the Inland Steel Company, at Hibbing, Minn., was a Duluth caller recently.

Duluth—Mr. H. J. Kruse, superintendent of the Rogers-Brown Ore Company's mines at Crosby, Minn., called at the Duluth office of the Bucyrus Company a short time go.

Missouri

Kansas City—J. P. Sprague Company, Rialto Building, reports a large sale on the Milburn light used by contractors in connection with night work.

The business of this concern, which embraces all classes of reinforced concrete and fire proof structures has increased very materially during the last year. They carry a large stock of building materials for quick delivery to contractors in their territory and maintain an engineering force for advising their patrons.

Kansas City—List & Gifford are now about finished with their contract at Rockford, Ill. This work was for a large industrial plant and required the excavation of about 100,000 cubic yards of solid rock. A 70-C Bucyrus shovel was used on the work.

St. Louis—Thompson & Scott, Times Building, St. Louis, Mo., are making rapid progress with their Cotton Belt Railroad contract in southern Missouri.

Mississippi

Greenville—The Central Dredging Company, Rockefeller Bldg., Cleveland, Ohio, has been awarded contract by the Riverside Drainage District Commissioners for the construction of group No. 2, of the lateral system, involving the removal of 270,000 cubic yards of material at 12½ cents per cubic yard. B. B. Gordon, Engineer.

Moorhead—The Moorhead Drainage District contract, consisting of 600,000 cubic yards of excavation, was let to the Southern Drainage Company of Paragould, Ark. This district embraces 16,000 acres, surrounding Moorhead, and when completed will drain some of the best land in the Delta.

Montana

Great Falls—Twohy Brothers of Portland, Ore., have been awarded contract to grade the extension of the Chicago, Milwaukee & Puget Sound Railway from here to the terminus of the line at Agawam on Muddy Creek, about 13 miles north of Choteau. The contract calls for the grading of about 65 miles of roadbed, requiring the removal of 750,000 yards of dirt. E. O. Reeder, Chief Engineer.

Hamilton—L. D. Borden, Florence, Mont., has been awarded contract by the Bitter Root Valley Irrigation Company for the construction of 5.9 miles of canal, average bottom width 8 feet, approximately 75,000 cubic yards.

Nebraska

Tecumseh—The lowest bid received by the Johnson County Drainage Commissioners for digging the main channel and laterals along the Nemaha river and tributary streams for drainage purposes was that of H. T. Ward Company of Tecumseh, at 7.44 cents per cubic yard.

Fremont—Contract has been let to J. S. McLaughlin & Sons, of Red Oak, Iowa, for the construction of the extension of the levee southwest of the city.

Nevada

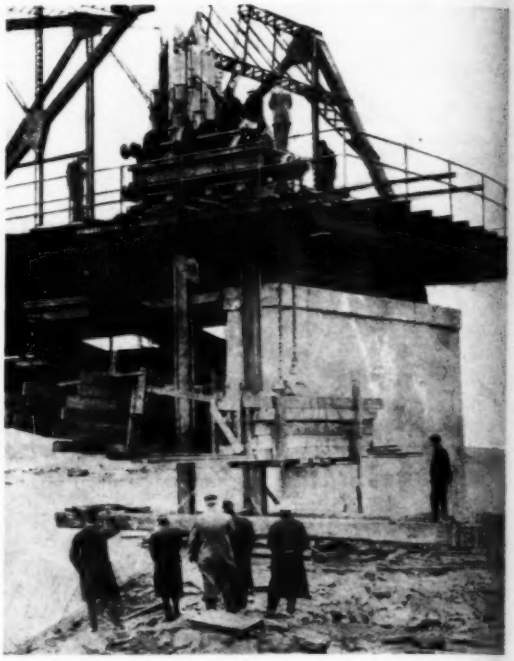
Ruth—The Copper Flat Mine is now working nearly full capacity, being still handicapped by the lack of laborers who have gone home to the war. Among the shovel men running the eight Bucyrus 95-C and the one 70-C of the Nevada Consolidated Copper Co., at their Copper Flat Mine (Ruth, Nevada) are the following:

Robt. Lovelace	Frank A. Coleman
Ed. Reid, Mach. Shop Foreman	G. A. Terrier, Shovel Runner
O. O. Jonnum, Shovel Runner	W. A. Murray, Shovel Runner
C. Zinng, Shovel Runner	A. Nelson, Shovel Craneman
C. A. Clancy, Shovel Runner	Mike Kluzek, Shovel Runner
E. J. Weise, Shovel Runner	Harry E. Wallace, Shovel Run'r
Mr. Arnold, Shovel Runner	Ernest Young, Shovel Craneman

New York

Gardiner—O. Koell is running the 45-C Bucyrus for the Century Construction Company near Gardiner, New York. Dave Callahan is firing and D. W. Stouffer is craning for him.

Fort Plain—Our illustration shows a Mundy Hoisting Engine built for the State of New York for raising and lowering the lock gates on the Barge Canal near Fort Plain N. Y. The engine is here shown under a test during which it lifted 50,000 lbs. seven feet in twenty-two seconds. The engine is a special type designed especially for this work. It has cylinders 5½ by 10 inches and is geared 86 to 1. All cut gears are used. The machine is mounted on a sub-base made of structural steel which is carried on two 4 wheel trucks.



New York—Thomas P. Crimmins Contracting Co. have a forty-thousand yard contract at White Plains, New York. The contract covers the excavation for the Burke Foundation Hospital. They are operating a yard and a quarter Vulcan shovel. The earth work has just been finished and the shovel is now in the rock.

Bordheads Bridge—R. H. Briggs is now craning on a 70-C Bucyrus for Winston and Company at Brown Station, New York.

New York Items

Labor is getting more plentiful as much of the work along the Barge Canal is closing in for the winter, good gangs of Polish, Russians, Greeks, and Italians can be secured at this time in better quantity and quality than at any time before this season.

The Power Construction Company are working steadily on their Dam at Somerset, Vermont, and making good headway, they are still placing extra laborers and seem to be prepared for all winters hard work.

Grant Smith & Locher are continuing their work on the Acqueduct work under New York City, and are making wonderful progress, one piece of their work under Central Park, will be completed under the time limit.

It is stated by th Steamship Agencies that 78,000 men, mostly Greeks and Bulgarians have left the Port of New York in the last 6 weeks, for the old country and in nearly every case have been enlisted before tickets was purchased, a number of ships have been chartered carrying nothing but these enlisted soldiers on them, as the regular vessels sailing were already filled in advance. This speaks of a scarcity of labor for the coming

spring, unless immigration from other countries should be excessive, which it is not thought possible, with the unrest in all European countries.

Walsh-Kahl Construction Company are pushing their work along the line of the New York Central R. R. they have at the present time camps at Fort Hunter, Indian Castle, Rhinecliff, Tivoli, Stockport, Utica, Fishkill Landing and Hyde Park all in New York State, and on all parts of the work are handling their job with energy and all up to date methods, as this firm are so well known for doing.

MacArthur Brothers Company are building a large Power Dam near Clanton, Alabama, they are building about 15 miles of railroad to reach the work from the main line of the L. & N. R. R. and when this is completed can place all kinds of machinery and hasten the work, which is now getting rapidly in line.

An Electric Line is being constructed on Long Island from the Queensboro Bridge to Jamaica, by MacArthur Brothers Company of No. 11 Pine St. City, this is a very nice piece of work and the company are employing a large force of laborers.

North Carolina

Whitney—Mr. J. W. Murray, an old time steam shovel man has just finished erecting a 70-C Bucyrus shovel at Whitney, North Carolina, and has accepted a position with the J. J. White Co. at Augusta, Georgia. Abe Edwards is craning for him and B. A. Stern is Master Mechanic.

Ohio

Akron—W. R. Speers who until recently has been running a 70-C Bucyrus shovel in Pennsylvania, for the James H. Corbert Co., is now operating a Marion Model 60 shovel for the P. T. McCourt Co. of Akron.

Cincinnati—Proposals are being invited by the United States Engineer's Office for a dipper dredge to be used on Ohio River work.

Germantown—The Wiggin Crushed Stone Co. has added a second hand Little Giant Vulcan for work in their gravel pit. They have, in addition to this, one style "A" Marion. One shovel is being used for stripping and the other for digging gravel.

Columbus—The work being carried on by the Pennsylvania R. R. in elevating their tracks is progressing in good shape. It will require a year or more to complete the contract.

Toledo—J. C. Carlin is doing a large amount of work in connection with the double tracking of the L. & N. R. R. in Alabama. He says everything is going on nicely and the various sub-contractors are doing well.

Toledo—J. C. Carland & Co., 430 Valentine Bldg., Toledo, Ohio, has been awarded contract for constructing the Fearing street subway planned as a part of the Lake Shore improvements at the Air Line Junction to cost $2,000,000.

Oregon

Portland—Twohy Brothers Company of Portland, Ore., has awarded two sub-contracts under their contract to grade the Choteau line of the Chicago, Milwaukee & Puget Sound Railway; the larger of the two went to R. B. Fraser who will construct the roadbed of a 20 mile stretch of the line. The other contract is a six mile stretch which went to William Hotgskiss of Choteau.

Pennsylvania

Girardville—The P. & R., C. & I. Co. have moved their 70-C Bucyrus shovel from the stripping job at Turkey Run Stripping to the Ellen Gowen Primrose job. Harry Flaherty is engineer, William Fox, cranesman and John Gouff, fireman. This machine has been located at Turkey Run for two years past where the digging was of the very hardest. It has loaded, in that time 50,105 3-yard dump cars.

Pittsburg—With an appropriation of $700,000 the City of Pittsburgh, Pa. has started the construction of large reservoirs on "Cabbage Hill" between Millvale and Etna, Pa., and has awarded contracts to the John F. Casey Co. whose general offices are in suite 1214 Henry W. Oliver Bldg., Pittsburgh. The Casey Company has put one Bucyrus steam shovel on the job, and arrangements are now being perfected to place a No. "0" Thew Automatic shovel on the work to strip the top soil.

A. S. Kelly, is superintedent for the Casey interests on this contract, while the shovels are under the direct charge of David Neal, one of the most experienced shovel engineers working in the Pittsburgh territory.

The Atlantic shovel has a capacity of two and one-half yards per lift, and in the construction of these reservoirs there will be over 240,000 cubic yards of excavating. This earth is disposed of in making 6-inch layers in the embankment, and on an average of 1,000 cubic yards of embankment are completed per working day. In the construction of the embankment, over 300,000 cubic yards of filling are required, and the entire contract will not be completed until January 1914. The new basins will have a maximum depth of 37 feet. The City of Pittsburgh owns 30 acres on "Cabbage Hill", but the new improvement will occupy an area of 800 by 900 feet. These basins will have a capacity of 150,000,000 gallons of water, and will be built in two compartments. The units will be equal.

The contract will call for the consumption of 30,000 cubic yards of concrete. The cement used on this job is from the plant of the Universal Portland Cement Co., at Universal, Pa. Because of the shortage of freight cars, the Casey Company have been compelled, from time to time to send employes out from the work to "ride the cars" from the cement plants to the job—this in order that strict tab can be kept on all cars. There will be 420,000 square yards of waterproofing in this work, which included the sides or embankment and floors. Because of the excellent weather that has prevailed in the Pittsburgh district of late, the Casey Company has been enabled to make excellent progress on this contract.

70 Ton Atlantic Shovel Owned by J. T. Casey Co. At Work on "Cabbage Hill" Reservoir.

Suffolk—A. E. Dick has a stripping contract for the P. & R., C. & I. Co. at this point. They have installed a spoil or inclined

plane with hoisting engine to assist the 18-ton Dinkey. The dump cars are loaded by a 90-ton Bucyrus shovel and five at a time are hauled up the incline.

Nicholson—P. A. Cranston is craning a 70-ton Bucyrus shovel for Hart & Co., on work which is being done near this place.

Kingarth—T. F. Dugan is engineer on a 70-ton Bucyrus machine working on the contract for Smith and Meinthew Co. He was formerly employed by the J. H. Corbett Co., and previous to that time by C. A. Sims Co.

Nicholson—James H. Brady is operating a 65-ton Bucyrus steam shovel for J. C. Hart Co. at this place.

Bethlehem—F. H. Clement & Co., are working two 70-ton Bucyrus shovels andone 40R Bucyrus for the Bethlehem Steel Co. George Herbert, is engineer, and also Tom Daily and William Martin, Tom Burke, Jack Boyle and A. Clementine are cranesmen

Bath—Louis Keller and F. D. Mann are operating a 70-C Bucyrus shovel for the Bath Portland Cement Co.

Altoona—The Nipond Construction Co. are at work on a contract embracing the building of an earth dam for the Borough of Juanita, Pa. They are using steam shovels in completing the work.

Point Marion—Walter Smith is operating a 70-C Bucyrus shovel for McMenamin & Sims at Point Marion, Pa.

Shamokin—The P. and R. C. and I. Company are moving their Bucyrus shovel from Otto Colliery to the Bear Valley Colliery at this place. The work which will be involved is a large stripping proposition covering a distance of 60 miles from P. and R. main tracks. This shovel has been in service practically four years doing very hard work with practically no repairs.

South Carolina

Greenville—Parker-Brooks Construction Company have just begun work on the Greenville, Anderson & Spartansburg Traction Line near Greenville, S. C., with a new 70-C Bucyrus shovel, 50 new Special 4-yd. Western dump cars and 3 new 20-ton Davenport locomotives. They have purchased another similar outfit which will be put at work on the same job during the next thirty days.

Spartansburg—J. Thomas Bennett of Spartansburg, S. C., and Willard, Boggs & Co. of the same place have each secured a nice piece of steam shovel work on the new line from Greenville to Spartansburg, and have each put in an equipment of Western dump cars. Mr. Bennett put in standard gauge equipment and Willard, Boggs & Co., put in the special 4-yard Western dumps.

Taylors—W. M. Dabbs is operating a 43-A MarionOsgood-shovel for Parker Brooks Construction Co., near this place.

South Dakota

Plankinton—Bids will be received February 25th at Plankinton, S. D., for grading of 65 miles of highway in Rurora County, by the Dakota Engineering Co., Engineers, Mitchell, S. D.

Ortley—O. C. Berline is operating a Dinkey locomotive for McCullough, Cheney & Evans, A. N. Berry is time-keeper and O. W. Bond is looking after the office work. A 70-C Bucyrus shovel is being used on the job.

Ortley—Ray R. Painter, of Maple Plain, Minnesota is craning a 60-C Bucyrus steam shovel for McCullough and Cheney near this point.

Tennessee

Nashville—A Class 80 Atlantic type shovel owned by the Louisville & Nashville Railroad, dug 4725 cubic yards place measure in one shift of 11 hours, on October 27th. The shovel is equipped with a 4½ yard dipper and was at work reducing grades for addition of a second track between Athens and Decatur, Ill. Mr. Theo. Speiden, Jr., is Roadmaster with offices at Nashville, Tenn.

Mr. J. H. Peyton, Assistant to the President, in commenting upon the work said: "We are greatly pleased with the results obtained by Messrs. Speiden and Crawford, both as to the performance of the steam shovel and the cost to this Company of moving the material, which has been very low".

College Grove—W. W. McLarty is running a 70-C Bucyrus shovel for Straley and Co. at Franklin, Tenn.

Memphis—Contract has been awarded to Holloway & Brown of Charleston, Mo., for levee construction of the Upper St. Francis Levee District, comprising the placing of 80,000 cubic yards of earth. at $21,625. Roach & Stansell Company of Memphis, Tenn., have contract in the Lower St. Francis Levee District requiring the placing of 108,000 cubic yards of earth at $24,546. E. M. Markham, Major, Engineers.

Mt. Pleasant—Crow & Harris of Mt. Pleasant ,Tenn. have just installed a new caterpillar Traction outfit on their Class 14 Bucyrus Drag Line Excavator on their phosphate stripping work near Mt. Pleasant, Tenn. Mr. Crow writes that the new traction is working great and that they moved the machine 2 miles over plowed ground much of the way and in a heavy storm and sometimes up a 10% grade without any seeming difficulty. He also advises that they are working the machine six days in a week and are soon expecting to be able to use it on Sundays for joy riding.

Chattanooga—T. Towles & Co. report their work on L. & N. moving fine. Camp No. 1 with a 70-C in the hands of Hugh Crowe, Engineer, Meade Vaughan, cranesman and Wm. Johnson, fireman. Camp No. 2 with a Little Giant in the hands of Wm. Babbington, Engineer, Bill Thorn cranesman and E. F. Buckhanan, fireman. Camp No. 3 with a 70-C in the hands of W. W. McLarty, Engineer, N. C. Edwards cranesman and Howard Edwards, fireman.

Johnson City—M. T. McArthur of Johnson City, Tenn., has installed a 14-B Bucyrus shovel in his tunnel on his C.C.&O. work near Pulaski, Va. He has a sub under Rhinehart & Dennis. The work consists of about 75,000 yards of rock excavation.

Nashville—Articles of incorporation of the Cincinnati, Nashville & Southern Railway Company have been filed with a capital stock of $25,000. The road is to be built first from Algood in Putnam County to Livingston in Overton County. C. B. Young is one of the incorporators.

Oakdale—H. C. Frazer is running a Bucyrus shovel for J. W. Swanton.

Texas

Galveston—The only bid received for dredging a channel and building a bulkhead near Port O'Connor, Tex., in which there is required the excavation of 57,000 cubic yards, was that of John Jacobson, Texas City, Texas, at $22,000. Lt. Col. C. S. Riche, Corps of Engineers.

Fredericksburg—The Fredericksburg Railroad committee has signed a contract with R. A. Love and Foster Crane for the construction of 25 miles of railroad that will afford connection between San Antonio and Fredericksburg. The contractors have filed a $250,000 bond to complete the line within ten months.

Dallas—T. M. Kirkes, Mohawk, Texas, has been awarded contract for building five miles of levee, comprising the placing of 100,000 cubic yards of earth, on Cedar Creek at Cedar, on

T. & N. O. R. R., 50 miles southwest of Dallas, Texas, between Kemp and Mabank. M. H. Gossett, Sam Houston Life Bldg., Dallas.

Greenville—Kerner Brothers of Dallas, Texas, have been awarded contract for grading the line between this place and Dallas for the construction of the Eastern Traction Company's new interurban line. It is estimated the cost will be $400,000.

Utah

Kyune—John Vaughn, of Denver, Colorado, an old time Steam Shovel Engineer, is running the Kilpatrick Brothers 70-ton Vulcan near Kyune, Utah.

Bingham—J. J. Allen is running an Atlantic for the Utah Copper Co. J. E. O'Mara is craning for him.

Ogden—The Utah Railway Company has let the contract for construction of a line to Black Hawk and Moreland to the Utah Construction Company, Ogden, Utah. W. H. Wattis, manager.

Salt Lake City—Surveys are being made by the Utah Light & Railway Co., it is stated, for an extension of its North Salt Lake line in Salt Lake City to Bountiful. Jos. S. Wells, Gen. Mgr., Salt Lake City.

Bingham—We had a very nice visit with our old friend J. B. Kellar recently. For the past twenty months he has been operating one of the Atlantic Shovels for the Utah Copper Co. Between watching a 350 foot bank, dodging rocks and keeping the Atlantic from going too fast, he is a busy proposition. M. J. Elmore is craning for him.

Virginia

Roanoke—The Vulcan shovel of the Virginia Iron, Coal and Coke Company is again in commission. W. L. Campbell is engineer, Henry Dyer cranesman and Ridge Patten fireman, and James A. Dyer superintendent of the Wonder mine of this Company.

Richmond—The grade on the new C. C. & O. work in Virginia has been changed and the work that was open cut has now been made into 21 ft. tunnels work and this has greatly reduced the yardage. Most of the contractors having tunnel work intend using steam shovels. Owing to the very rugged country most of the machinery installed on the work will have to let down onto the work from top of cuts by cable. Rhinehart & Dennis are the General Contractors on this work but they have sub-let an amount of it.

Washington

North Yakima—The issue of $600,000 in bonds to extend the Sunnyside canal, under the Yakima project, to Benton highlands, has been authorized. About 6,000 acres will be benfited.

Kittitas—Contract for filling in all trestles on the Chicago, Milwaukee & Puget Sound Railroad line between Kittitas and Boylston, Wash., has been awarded to Henry & McFee Company.

Spokane—Guthrie, McDougall & Co., Lewis Bldg, Portland, Ore., have been awarded contract for the grade separation in Spokane by the Northern Pacific for approximately $1,000,000.

Wisconsin

Alma—John Connover of Valpariso, Ind., recently closed a contract with J. J. McCaughey, General Contractor of Chicago, for about 125,000 cu. yds. of earth work on the C. B. & Q. R. R. Mr. McCaughey is about the largest teaming contractor in the United States. In preparing for this work Mr. Connover purchased an entire new equipment from Clapp, Norstrom & Riley of Chicago, consisting of a 70-C Bucyrus steam shovel, 4 yard Western dump cars and an 18 ton Davenport locomotive. About one mile of trestle has already been erected and the work of filling will begin as soon as weather permits.

Wilson & LaFleur on the Class 14 Bucyrus Drag Line.

Milwaukee—C. J. Wilson was engineer and Ben. LaFleur fireman on the Class 14 Bucyrus drag line excavator which was at work in the gravel pit of the Badger Gravel & Cement Co.

Milwaukee—Our illustration of Froeming Bros. 14-B Bucyrus shovel, shows this machine working on a cellar job on 12th Street near Vliet, Milwaukee, Wisconsin.

The excavation was 75 x 130′ and which was dug to a depth of 8′-6″ below the sidewalk line. The material was a sandy loam and was hauled 8 blocks to the dump in 2½ yard wagons. Four men were used on the work in addition to the teamsters.

Contractors' Locomotives

FOR LIGHT AND HEAVY SERVICE

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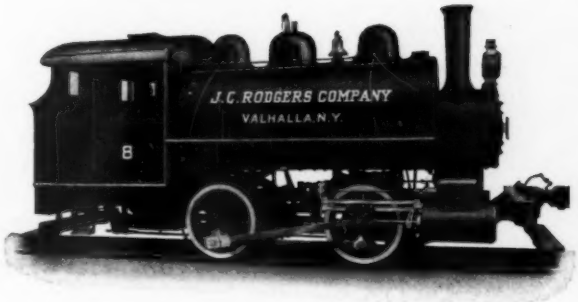

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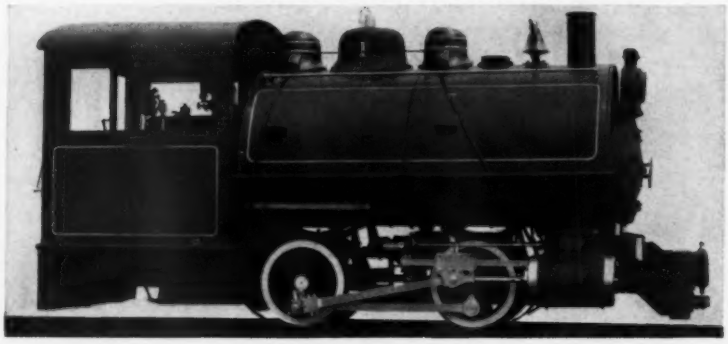

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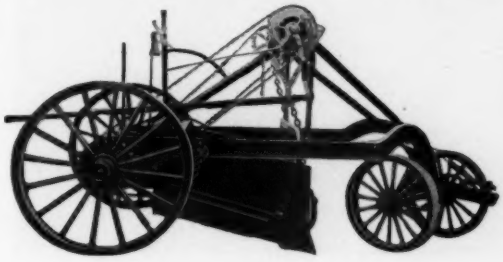

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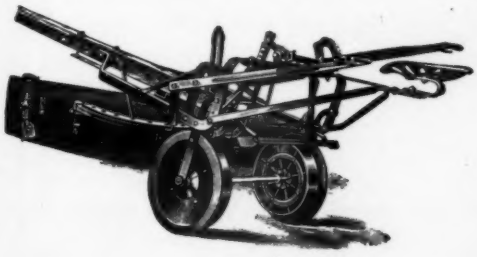

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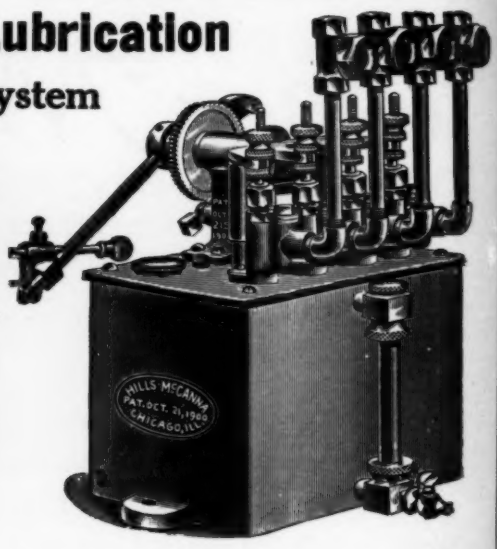

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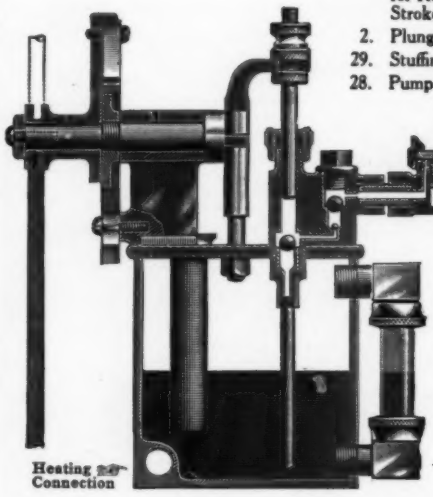
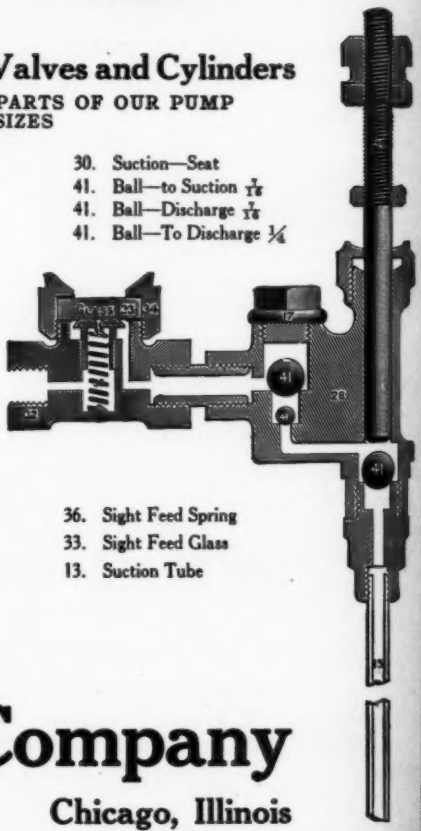


17. Pump Valve Cap
32. Sight Feed Body
34. Sight Feed Holder
35. Sight Feed Plunger

30. Suction—Seat
41. Ball—to Suction $\frac{7}{16}$
41. Ball—Discharge $\frac{7}{16}$
41. Ball—To Discharge $\frac{1}{4}$



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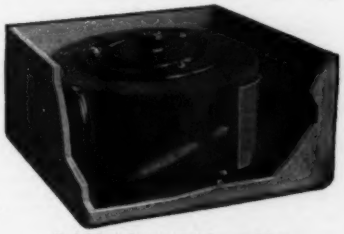

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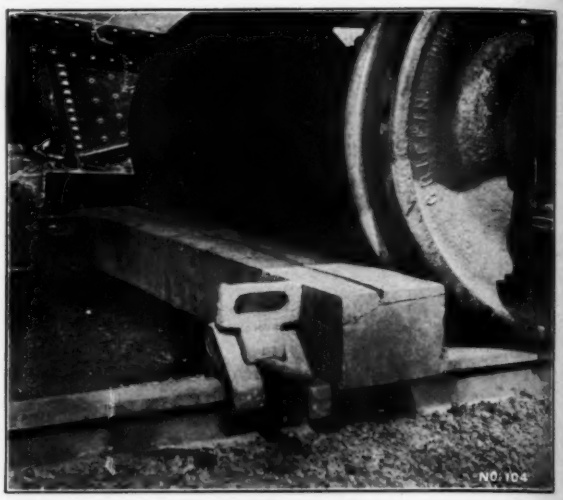

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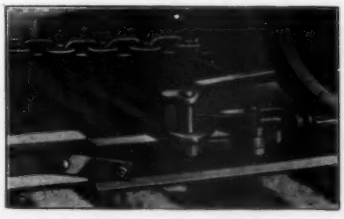

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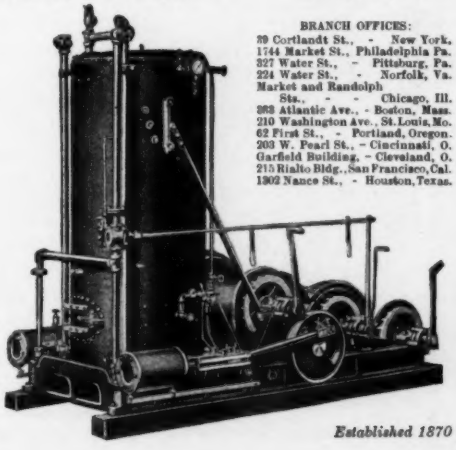

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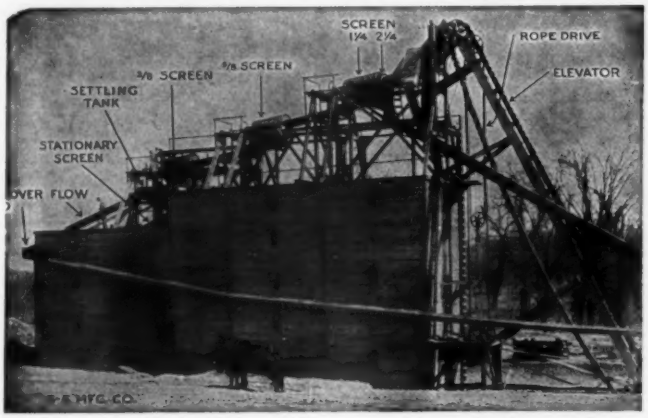

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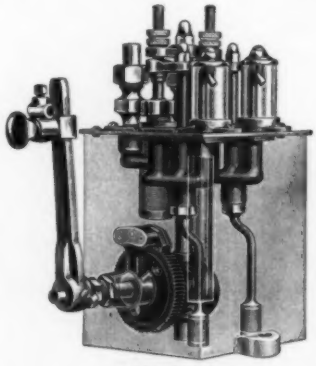

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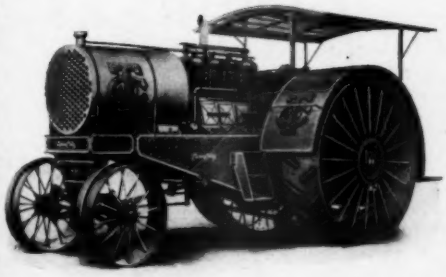

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Three 12x16 Manhattan Elevated Forney Type Locomotives, Standard Gauge.
One 10x16 Porter 4-Wheel Saddle Tank Locomotive, 36 in. Gauge.
One 9x14 Baldwin 4-Wheel Saddle Tank Locomotive, Standard Gauge.
Ten 9x14 Porter 4-Wheel Saddle Tank Locomotives, 36 in. Gauge.
Four Marion Model 60 Steam Shovels, 2½-yard Dippers.
Two Little Giant Special Steam Shovels, 1¼-yard Dippers.
One 20x20¼x24 Ingersoll-Sergeant Straight Line Air Compressor.

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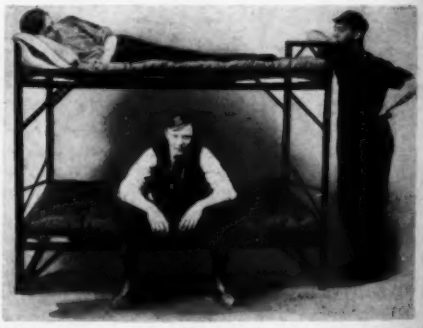

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